

## Butterflies of the Andaman and Nicobar Islands: Conservation Concerns

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**Abstract.** The insular butterfly fauna of the Andaman and Nicobar Islands has a high degree of endemism (50% at the subspecies level). It shows high biogeographical affinity to both Indo-Myanmar and Indo-Malayan fauna. The endemics are generally rare taxa that inhabit specialized niches in some islands and should be regarded as vulnerable to extinction or extirpation in the near future. The complete fauna includes, with recent records, 236 taxa recorded to date. Only 50% of the total taxa have been found in recent years, since 1985. Following independence, several different development activities have come into play that have degraded the environment of these islands and caused widespread negative effects on their fauna. Several current programs put into place by the Indian Government include agriculture, agroforestry, forest-based industries and tourism. These programs pose immediate threats not only to the irreplaceable endemic butterflies, but to most other components of the endemic biota, not the least of which are forest landscapes. There is an urgent need to conserve and preserve the biodiversity in butterflies and to immediately implement monitoring schemes to both evaluate their present status and their dynamics over time. Thus far government action has included declaration of a biosphere reserve, designation of National Parks and Sanctuaries, and implementation of the Wildlife Protection Act 1972. These actions do not appear effective in checking the degradation of most butterfly species and the natural resources upon which they are dependent. Additional measures are required to counter human impacts and to conserve the critical habitats in order to circumvent mass extinction of many endemics from these biogeographically rich islands.

**KEY WORDS:** Andaman and Nicobar Islands, Butterflies, Lepidoptera, Rhopalocera, Development, Deforestation, Endemicity, Biodiversity, Conservation Biology.

### INTRODUCTION

The Andaman and Nicobar islands prehistorically carried one of the richest tropical humid forest areas of India. In contrast to continental India with its dense human populations extending back for millennia, the islands remained in pristine condition until 1788. More than 1500 species of flowering plants with an attendant diverse and rich habitat for butterflies were characteristic. About 301 plant species are endemic. The region should be included with the Western Ghats and Sri Lanka as one of the major biodiversity "hotspots" of the globe (Myers, 1990). With arrival of the penal settlement in 1858, the closed ecosystem experienced its first major human

Table 1. Rare (R), very rare (VR) and straggler (S) species of the Andaman and Nicobar islands.

Family	Subfamily	Andamans			Nicobars		
		R	VR	S	R	VR	S
Papilionidae		3	-	2	2	1	-
Pieridae		2	-	4	3	-	4
Lycaenidae		11	8	-	15	1	-
Nymphalidae	Nymphalinae	11	2	3	4	3	3
	Danainae	2	1	4	3	-	2
	Amathusinae	2	-	-	-	-	-
	Satyrinae	2	-	-	2	1	-
Hesperiidae		19	2	-	6	1	-
Total		52	13	13	35	7	9

impact with a slowly expanding population in the decades following. The magnitude of impacts gradually intensified beginning in 1941 when convicts along with repatriates from Myanmar, Sri Lanka and Bangladesh were settled in these islands. During the post-independence period from 1947 onward, ex-service men and more refugees from West Bengal, South India, and Sri Lanka brought about further habitat degeneration. The settlers were allotted land for homes and agriculture, but they illegally encroached upon surrounding land, clearing forests for revenue and growing cash crops. Environmental degradation accelerated with the implementation of development schemes on several islands. Recent plans to further expand agroforestry, agriculture, forest-based industries and tourism pose irreversible threats to the fauna and flora of these islands.

The butterfly fauna of the Andaman and Nicobar Islands is insular with its origins in the faunas of the Indo-Myanmar and Indo-Malayan regions. The Andaman elements have their closest affinities to Myanmar and mainland elements whereas the Nicobar elements appear most closely related to Malayan elements. The long isolation of these islands from the Asian continent, if the islands indeed ever had a continental connection, and their until recently undisturbed ecology provided optimal conditions for the evolution of many local and endemic taxa. Evans (1932) described 260 forms, followed by Ferrar (1951) who described 268 forms from these islands. There are 214 species and 236 subspecies in 116 genera belonging to five families and three subfamilies. More than 50% of the taxa are endemic to these islands. Many endemic taxa in each family are rare, very rare, or stragglers (Table 1). (Since these taxa are not included in Schedule I, II, or III of the Indian Wildlife Protection Act, they can not be assigned "threatened" or "endangered" status.)

Continuing development of the islands causes habitat destruction through deforestation, with correlative decreases predicted in population viability of the butterfly fauna. Because of host specificity of many butterflies, they are

unable to adapt to ecologic changes that include hostplant loss below critical levels. A number of species of the islands may already be extinct as a result of habitat destruction during the past fifty years. This paper represents an attempt to analyze factors threatening the butterfly fauna by comparing and compiling the past and recent available literature and recent observations.

### **Study area**

The archipelago of the Andaman and Nicobar islands stretches over 800 km in the Bay of Bengal. It comprises 572 islands, reefs and rocks, but only 38 islands are inhabited, of which 12 are in the Nicobars. The islands lie between 6°5'–13°30' N and 92°20'–93°56' E with a total geographical area of 8249 sq km. The Andaman islands are separated from the Nicobars by a channel of 155 km known as Ten Degree Channel. There is active volcanism with major eruptions on Barren island in 1991 and 1994. A map of the region is given as Figures 1 and 2.

### **CLIMATE**

The Andaman and Nicobar Islands have a warm, humid, tropical climate. There are two monsoons, a main one from May to October and a second shorter one in December-January. Average annual rainfall is 300 cm with June and July the months of heaviest rainfall. The temperature ranges from 16°C to 34°C and relative humidity from 60 to 99%. The climatic conditions exemplify those described by Walter (1973) for evergreen tropical rain forest. A monthly chart of rainfall and maximum/minimum temperature is given as Figure 3.

### **ZOOGEOGRAPHY**

Zoogeographically the butterfly fauna of the islands can be classified into six major groups: 1) wide ranging fauna, 2) similar to Myanmar fauna, 3) similar to Malayan fauna, 4) fauna common to the Andamans and Nicobars, 5) endemic to the Andamans, and 6) endemic to the Nicobars. Wide ranging taxa which show affinities with Indian mainland elements form 10% of the total fauna and are rare in these islands. Half the taxa are endemic to these islands (Table 2) and 20% of the species are common to both groups of islands. The remaining taxa show similarities with Myanmar and Malayan elements.

### **IMPACTS**

There have been direct and indirect ecological consequences of island development as a consequence of both planned and unplanned activities. Deforestation directly destroyed habitat, but indirect long term effects include establishment of monoculture forests with their attendant loss of general biodiversity and establishment of weedy species that have complex effects along the entire natural community. Replacement of native forest with cash crops have the same, but perhaps not so severe, effect since for the

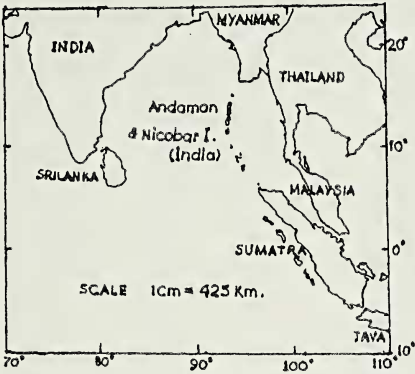


Fig. 1 Map showing location of Andaman and Nicobar islands in relation to India, Malaysia and Indonesia.

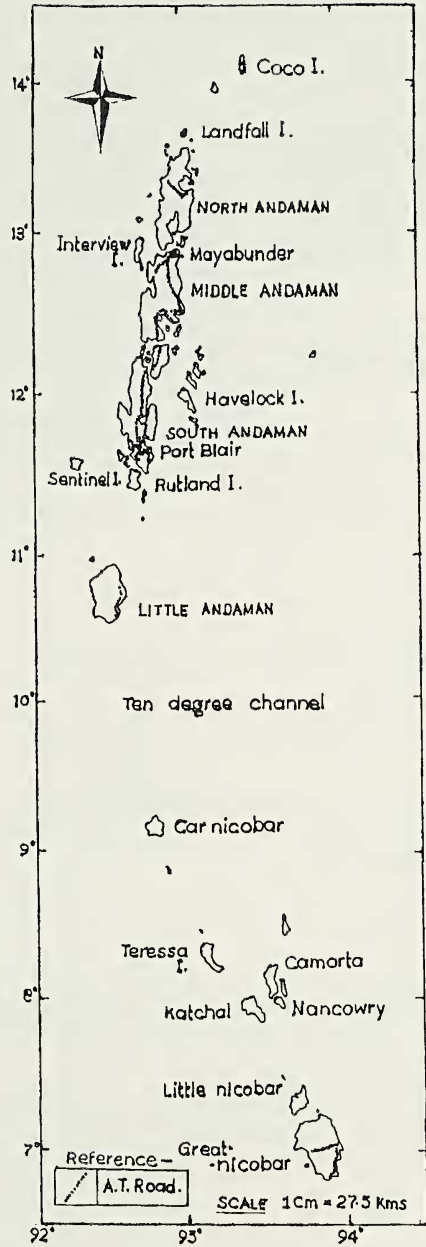


Fig. 2 Map of the Andaman and Nicobar Islands



Table 2. Endemic subspecies of the Andaman and Nicobar islands.

Family	Subfamily	Andamans	Nicobars	Both
Papilionidae	Papilioninae	12	9	-
Pieridae	Pierinae	10	11	1
Lycaenidae		58	34	-
Riodinidae		1	-	-
Nymphalidae	Nymphalinae	34	19	2
	Danainae	8	17	2
	Amathusiinae	2	-	-
	Sayrinae	7	6	-
Hesperiidae		38	13	8
Total		170	109	13

Table 3. New records of butterflies during the last decade from the Andaman and Nicobar islands.

Family	Subfamily	Andamans	Nicobars
Papilionidae	Papilioninae	7	4
Pieridae	Pierinae	4	3
Lycaenidae		2	2
Nymphalidae	Nymphalinae	2	-
	Danainae	1	1
	Amathusiinae	1	-
	Sayrinae	2	-
Hesperiidae		1	-
Total		20	10

most part these are small landholdings with some residual diversity. Pesticide use for both insect and plant control under all human centered activity is a negative impact.

Tourism, augmented by general increase in continental traffic, provides dispersal routes for many exotic invasive plants and animals that may further alter natural communities. Effects of exotic invaders around the world has had serious consequences on natural biodiversity and the effect can be expected to only get worse without strict control.

#### OBSERVATIONS ON BUTTERFLY POPULATIONS

Ferrar (1951) mentioned that areas remained completely or partially unstudied to his time. No butterfly surveys had been made on Narcondam, Barren Islands, the Brothers, the Sisters and in the Nicobars, Bomboka. A partial survey was made on the Cocos, North Sentinel, Little Andaman, and in the Nicobars, Tillanchong. The statement is still true for these islands.

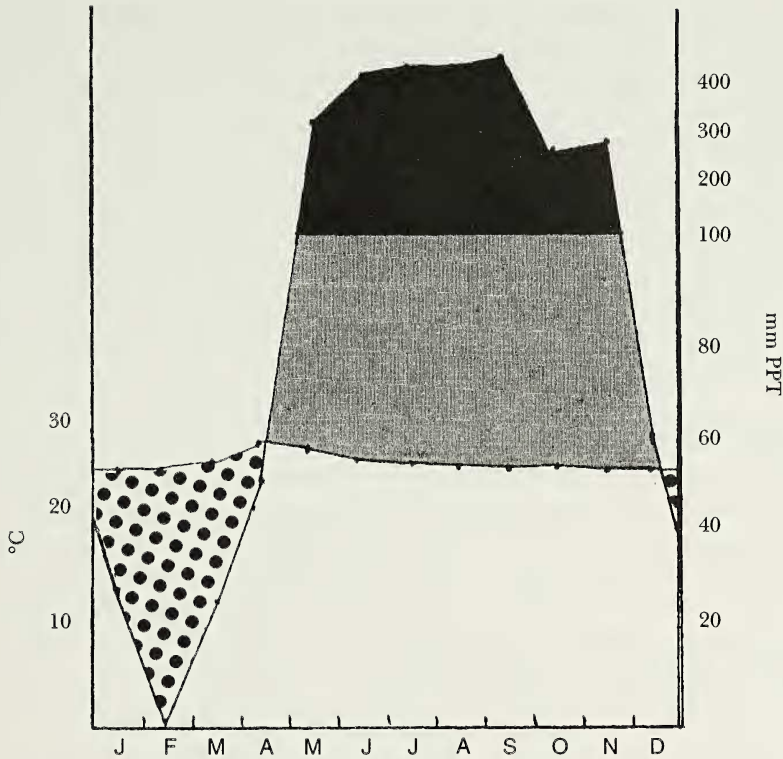


Fig. 3 Climate diagram (after Walter, 1973) for Port Blair, Andaman Islands. Base on ten year data. Highest and lowest mean monthly temperature records are 32.2° C and 21.4° C.

Thus we have no data on how many butterflies were incinerated on Barren Island during the 1991 and 1994 eruptions when all but about 10% of the vegetation was covered.

On the Little Andaman, distinct local races of *Euploea andamanensis* and *Parthenos sylvia* were recorded by Ferrar (1951), but these have not been sighted since, possibly a consequence of habitat destruction by the 16 sq km area of Red Oil Palm plantation.

*Appias albina darda* have declined greatly in numbers. These butterflies were recorded as abundant in 1923 by Ferrar in the Middle and South Andamans, but are now rare. Similarly, *Atella p. phantha* swarmed in uncountable numbers during 1923-1927, overcasting the sky and flying from Ross Island to Mount Harriet in a northwest direction in April-May (Ferrar, 1951), but no more than 10 butterflies can be sighted together today (Khatri 1991). *Jamides kankena pseudelpis* and *Eurema andersoni andamana*, common to Bomlungta in December from 1923-1931 (Ferrar, 1951), have become extremely rare in Middle Andaman. *Byasa sambilanga*, *Neptis jumba binghami*,

*N. ebusa*, *N. nar*, *Artipe eryx* and *Doleschallia celinde continentalis* never have been recorded since the type specimens. Similarly *Polyura schreiber tisamenus* is no longer extant. Additional taxa may have been affected over the past 60 years.

Some taxa inhabit extremely small areas, e.g., the common *Heliophorus epicles* and the rare *Artipe eryx*, were found at Bomlungta, Middle Andaman, but have not been collected during recent surveys. The Malayan *Hypolimnas antilope anomala*, known only from a small locality in Car Nicobar, is very rare and coconut plantations threaten its existence in the island. The status of *Danaus affinis malayana*, confined to central Nicobars, is unknown.

The common butterflies of the mainland such as *Danaus chrysipus*, *Lampides boeticus* and *Appias libythea alferna* are very rare in the Andamans, but do occur regularly.

### HABITAT DESTRUCTION

Evans (1932) mentioned that during his visit in 1931 the best localities in the Andamans for butterflies were Webi, reached from Stewart south (Bonington) in North Andaman; Bomlungta in the Middle Andaman; Mount Harriet, Ariel Creek and Austinabad forest in the South Andaman; and Bumila and Ingoi in the Little Andaman. In the Nicobars Evans especially noted Sawi and Arug in Car Nicobar, Pulo Milo and the opposite coast in Little Nicobar, Kondul off Great Nicobar (an outstanding collecting area), and Pulo Babi, the Alexandra River and a few other localities in Great Nicobar.

These localities are presently no longer productive for butterfly collecting. Diglipur in the North Andaman has been extensively cleared for cultivating vegetables and cash crops, with active wood extraction taking place without control from the reserve forest. Bomlungta in Middle Andaman has also been impacted by agriculture. Two forest-based industries extract wood from this area with the completion of an access road having facilitated the process. Cane industries have accelerated the destruction of this area further. The second largest population settlement at Rangat and Maya Bunder in Middle Andaman consumes a substantial area of the forest every year. Regeneration of the forest is poor in these areas. Evidence to date indicates that loss of primary forest is irreversible.

The situation is much worse in South Andaman. Mount Harriet, formerly reported to be rich habitat for many lycaenids and hesperiids, no longer provides good habitat for these butterflies. Large areas are under coconut cultivation, especially the foothills at South Bay. Austinabad forest has been totally cleared for commercial gain. Brichganj is occupied by a military base. Ferrar (1951) mentioned that these two places were the best collecting localities in South Andaman. Rangachang and Maimyo have also lost their surrounding virgin forest. A large plywood factory at Port Blair consumes a major area of forest every year. Extension of the airport for tourist development is a recent development that has destroyed habitat and has indirect impacts on all natural areas by permitting massive secondary effects from

trampling and further demands for high level consumerism. The recently opened Grand Trunk Road across South Andaman, connecting to Middle Andaman, has exposed further virgin forest for extraction of wood, especially bamboo forest. The scarcity of fresh water for both local and temporary populations compelled the government to construct dams that submerged forest areas. Neil and Havelock Islands are fully under cultivation.

Little Andaman has experienced its most serious ecological degradation in the north and at Hut Bay. Among the chief factors responsible for the disaster are the Red Oil Palm Plantation (16 sq km with plans to extend up to 96 sq km), construction of a dam at R. K. Puram, and farming, including sugar cane and coffee plantations, and wood-based industries at Hut Bay.

Sawi Bay and Arug in Car Nicobar are under coconut plantations while Katchal in the Middle Nicobars has rubber and coconut plantations. Although Great Nicobar has been declared a Biosphere Reserve the environment remains under unending human population pressure. The declaration of Great Nicobar as a free port and the construction of an air base and runway has further damaged the ecology of the island. Thus biodiversity at all levels is suffering from both small piecemeal and larger scale losses with nothing being replaced or allowed to regenerate.

It is clear that if the present trend of clearing and development continues, whatever fauna now remains will either become extinct or highly localized and endangered. At present, sixty years after the first comprehensive reports, the existence of many butterfly taxa is threatened due to the destruction of habitats. During this period, no attempt has been made to study the food plants, ecology, or life history of any of the endemic butterfly taxa (Ferrar 1951). Such studies are essential aspects for even the most rudimentary planning for their conservation needs. The same state of affairs undoubtedly applies to all other invertebrate taxa for which butterflies are but an indicator species.

#### RECENT TREND OF FAUNA.

Out of 236 taxa 118 have been recorded in recent years (since 1985). New records of the past ten years are presented in Table 3. These data indicate an influx of more widespread taxa as exotic intruders. In Papilionidae these include *Troides helena cerberus*, *Papilio polytes romulus*, *P. d. demoleus*, *Pachliota a. aristolochia*, *P. a. ceylonica*; and in Pieridae *Delias hyparete indica*, *Eurema l. laeta* and others (Arora and Nandi 1980 and 1982; Khatri and Singh 1988; Khatri and Mitra 1989 a, b; Khatri 1991, 1992).

The fauna elements of the Andamans are mixing with the Nicobar elements and vice versa; e. g., *Graphium agamemnon pulo* and *Pachliopta aristolochia sawi*, known earlier from the Nicobars, are new records for the South Andamans (Khatri and Singh 1988), and *Eurema l. laeta*, *Cepora nerrisa depha* and *Gandaca harina nicobarica* from the Nicobars have also spread to the Andamans (Khatri and Mitra 1989b). On the other hand *Catopsilia c. crocale* and *Cepora nandina andamana*, hitherto not recorded from the Nicobars,



have recently been found. The mixing of faunal elements most likely indicates anthropogenic effects.

### INDIAN GOVERNMENT ACTION

In an attempt to conserve its formerly rich fauna, the Indian Government passed the Wildlife Protection Act of 1972, published Schedule I and II of endangered species, and imposed a total ban on international trade in Indian butterflies. About 350 species are included in the Red Data Book, but the butterflies of the Bay Islands are not included among these schedules. Specimen collection has been almost universally discredited, however, as having any other than superficial impact on insect populations and serves only to divert attention from habitat destruction that is the ultimate cause of the preponderance of the current mass extinction event.

Another step to protect the flora and fauna was the declaration of National Parks Sanctuaries and the Biosphere Reserve in the Andaman and Nicobar islands. There are five National Parks in the Andamans (Mount Harriet, Saddle Peak, Middle Button Island, North Button Island and South Button Island) and none in the Nicobars although Great Nicobar was designated as biosphere reserve in 1989. However, evaluation of the present status of endemic butterflies, demographics, bionomics and community process have not been undertaken, and there have been no monitoring schemes put in place either by government or by private organizations. There is an urgent need to assess the present fate of the butterflies with special attention to rare and very rare endemic taxa. The meager measures taken by the government are insufficient to check faunal loss from these islands.

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Table 4. A list of the butterflies (Rhopalocera: Lepidoptera) from Andaman and Nicobar islands.

<b>Papilionidae</b>	Andamans	Nicobars
<i>Chilasa clytio flavolimbatus</i> Oberthur	+	-
<i>Graphium agamemnon andamana</i> Lathy	+	-
<i>decoratus</i> Rothschild	-	+
<i>pulo</i> Evans	-	+
<i>antipathes epaminondas</i> Oberthur	+	-
<i>eurypylus macronius</i> Jordan	+	-
<i>Pachliopta aristolochia aristolochia</i> Fabricius	+	-
<i>ceylonicus</i> Moore	+	-
<i>goniopeltis</i> Rothschild	+	-
<i>coon rhodifer</i> Butler	+	-
<i>sambilanga</i> Doherty	+	-
<i>hector</i> L.	-	+
<i>sawi</i> Evans	-	0
<i>camorta</i> Moore	-	0
<i>kondulana</i> Evans	-	0
<i>Papilio demoleus demoleus</i> L.	0	-
<i>fuscus andamanicus</i> Rothschild	0	-
<i>mayo</i> Atkinson	+	-
<i>memnon agenor</i> L.	+	-
<i>polytes stichioides</i> Evans	0	-
<i>nikobarus</i> F.	-	0
<i>Troides helena cereberus</i> Feider	+	-
<i>ferrari</i> Tyler	-	0
<i>heliconoides</i> Moore	+	-
<b>Pieridae</b>		
<i>Anaphaeis aurota aurota</i> Fabricius	-	0
<i>Appias albina darada</i> F. & F.	+	-
<i>libythea oferna</i> Swinhoe	-	0
<i>lyncida galbana</i> Fruhs.	-	0
<i>nicobarica</i> Moore	-	+
<i>paulina galathea</i> F.	-	0
<i>Catopsilia pomona</i> Fabricius	+	-
(incl. f. <i>crocale</i> )	+	+
<i>pyranthe</i> L. (incl. f. <i>florella</i> )	+	-
<i>Cepora nadina andamana</i> Swinhoe	+	+
<i>nerissa depa</i> Moore	+	+
<i>lichenosa</i> Moore	+	-
<i>Delias hyparete indica</i> Wallengren	+	-

<i>Eurema andersoni evansi</i> F. & F.	0	-
<i>blanda grisea</i> Evans	-	0
<i>moorei</i> Butler	-	0
<i>silhetana</i> Wallengren	+	-
<i>brigitta rubella</i> Wallengren	-	0
<i>hecabe blairana</i> Swinhoe	+	-
<i>nicobariensis</i> F.	-	+
<i>laeta laeta</i> Boisduval	+	+
<i>Gandaca harina andamana</i> Moore	+	-
<i>nicobarica</i> Evans	+	+
<i>Hebomoia glaucippe roepstorff</i> Wood-Mason	+	-
<i>Ixias pyrene andamana</i> Moore	+	-
<i>Leptosia nina nina</i> Fabricius	+	-
<i>nicobarica</i> Doherty	-	+
<i>Pareronia ceylanica naraka</i> Moore	+	-
<i>Saletara panda chrysea</i> Fruhs.	-	0

### Lycaenidae

<i>Amblypodia anita andamanica</i> Riley	+	-
<i>Anthene emolus andamanicus</i> Fruhs.	0	-
<i>lycaenina lycambes</i> Hewitson	0	-
<i>Arhopala alea constanceae</i> de Niceville	0	-
<i>alesia</i> F.	0	-
<i>asopoia asopia</i> W-M & de Niceville	0	-
<i>centaurus coruscans</i> W-M & de Niceville	+	-
<i>fulla anadamanica</i> W-M & de Niceville	+	-
<i>zeta</i> Moore	+	-
<i>Artipe erys</i> L.	+	-
<i>Bindahara phocides phocides</i> Fabricius	0	-
<i>areca</i> F.	-	0
<i>Caleta elna noliteia</i> Fruhs.	+	-
<i>roxus roxus</i> Godart	ρ	-
<i>manluena</i> F.	-	+
<i>Castalius rosimon alarbus</i> Fruhs.	+	+
<i>Catochrysops lithargyros</i> Moore	+	+
<i>strabo</i> Fabricius	+	+
<i>Charana jalindra tarpina</i> Hewitson	+	-
<i>mandarinus</i> Hewitson	0	-
<i>Chiliana othona</i> Hewitson	0	-
<i>Curetis saronis saronis</i> Moore	0	-
<i>kondulana</i> Evans	-	0
<i>nicobarica</i> Swinhoe	-	0
<i>obscura</i> Evans	-	0
<i>Deudorix epijarbas amatius</i> Fruhs.	0	-
<i>Discolampa ethion ethion</i> Doubleday & Hewitson	+	-
<i>airavati</i> Doherty	-	0
<i>Euchrysops cnejus</i> Fabricius	+	+
<i>pandava pandava</i> Horsfield	+	+
<i>Everes parrhasius pila</i> Evans	-	+
<i>Heliophorus epicles indicus</i> Fruhs.	0	-
<i>Horaga albimacula</i> W-M & de Niceville	0	-

<i>onyx rana</i> de Niceville	0	-
<i>Hypolycaena erylus andamana</i> Moore	+	-
<i>thecloides nicobarica</i> Evans	-	0
<i>Ionolyce helicon brunnea</i> Evans	+	-
<i>kondulana</i> Evans	-	0
<i>Iraota timoleon timoleon</i> Stoll	0	-
<i>Jamides alecto fusca</i> Evans	0	-
<i>kandulana</i> F.	-	0
<i>bochus bochus</i> Cramer	+	-
<i>nicobaricus</i> W-M & de Niceville	-	0
<i>celeno blairana</i> Evans	+	-
<i>kinkurka</i> F.	-	0
<i>nicevillei</i> Evans	-	0
<i>ferrari</i> Evans	-	0
<i>kankena kankena</i> F.	-	0
<i>pseudelpis</i> Butler	0	-
<i>Lampides boeticus</i> L.	0	0
<i>Loxura atymnus nicobarica</i> Evans	-	+
<i>prabha</i> Moore	+	-
<i>Lycaenopsis puspa cyanescens</i> de Niceville	-	0
<i>telis</i> Fruhs.	+	-
<i>Megisba malaya presbyter</i> Fruhs.	-	0
<i>sikkima</i> Moore	0	-
<i>Nacaduba ancyra aberrans</i> Evans	-	0
<i>berenice nicobarica</i> W-M & de Niceville	-	0
<i>hermus major</i> Evans	-	0
<i>kurava euplea</i> Fruhs.	+	-
<i>nicobarica</i> Toxopeus	-	0
<i>pactolus andamanica</i> Fruhs.	0	-
<i>macrophthalma</i> F.	-	0
<i>pavana</i> Horsfield	+	-
<i>vajuva varia</i> Evans	-	0
<i>Neopithecops zalmora</i> Butler	+	-
<i>Petrelaea dana</i> de Niceville	0	-
<i>Pithecops hylax</i> Fabricius	-	+
<i>Pratapa deva lila</i> Moore	0	-
<i>Prosotas aluta coelestis</i> de Niceville	0	-
<i>dubiosa fulva</i> Evans	0	-
<i>nora nora</i> F.	0	-
<i>dilata</i> Evans	-	0
<i>Rapala dieneceae intermedia</i> Staudinger	0	-
<i>schistaceae</i> Moore	0	-
<i>suffusa rubicunda</i> Evans	+	-
<i>varuna orceis</i> Hewitson	0	-
<i>Spalgis epius nubilus</i> Moore	+	+
<i>Spindasis lohita zoilus</i> Moore	+	-
<i>Surendra quercetorum latimargo</i> Moore (? <i>vivarna</i> )	+	-
<i>Tajuria jangala andamanica</i> W-M & de Niceville	+	-
<i>Tazuris cippus cippus</i> Fabricius	0	-
<i>Zeltus etolus</i> Fabricius	+	-



<i>Zizeeria kansandra</i> Moore	0	-
<i>Zizina otis otis</i> Fabricius	+	+
<i>Zizula gaika</i> Trimen	+	+
<b>Riodinidae</b>		
<i>Abisara echerius bifasciata</i> W-M & de Niceville	+	-
<b>Nymphalidae</b>		
<i>Amathusia phidippus andamanensis</i> Fruhs.	+	-
<i>Atella alcippe andamana</i> Fruhs.	+	-
<i>fraterna</i> Moore	-	0
<i>Athyma nefte rufula</i> de Niceville	0	-
<i>Cethosia biblis andamana</i> Stichel	+	-
<i>nicobarica</i> F.	+	+
<i>Charaxes bernardus agna</i> Moore	0	-
<i>Cirrochroa fasciata</i> F.	0	-
<i>nicobarica</i> W-M & de Niceville	-	+
<i>tyche anjira</i> Moore	+	-
<i>Cupha erymanthis andamanica</i> Moore	+	-
<i>nicobarica</i> F.	-	0
<i>Cyrestis cocles formosa</i> F.	+	-
<i>tabula</i> de Niceville	-	0
<i>thyodamas andamanica</i> W-M & de Niceville	+	-
<i>Danaus affinis malayana</i> Fruhs.	-	0
<i>chrysippus chrysippus</i> L.	+	+
<i>genutia genutia</i> Cramer	+	+
<i>melanippus camorta</i> Evans	+	+
<i>nesippus</i> F.	-	+
<i>Discophora timora andmanensis</i> Staudinger	+	-
<i>Doleschallia bisaltide andamana</i> Fruhs.	+	+
<i>Elymnias cottonis cottonis</i> Hewitson	+	-
<i>panthera mimus</i> W-M & de Niceville	-	+
<i>Euploea core andamenensis</i> Atkinson	+	-
<i>bumila</i> Evans	+	-
<i>camorta</i> Moore	-	0
<i>scherzeri</i> F.	-	+
<i>simulatrix</i> Woodmason	0	0
<i>crameri esperi</i> F.	-	0
<i>frauenfeldii</i> F.	-	0
<i>leucostictos novarae</i> C. Felder	0	-
<i>midamus chloe</i> Guerin	-	0
<i>roepstroffi</i> Corbet	0	-
<i>mulciber mulciber</i> Cramer	0	0
<i>phaenareta phoebus</i> Butler	-	0
<i>sylvester harrisi</i> F.	0	-
<i>Euripus consimilis consimilis</i> Westwood	0	-
<i>Euthalia aconthea acontius</i> Hewitson	+	-
<i>cibaritis</i> Hewitson	+	-
<i>teuta teutoides</i> Moore	+	-
<i>Herona marathus andamana</i> Moore	0	-
<i>Hypolimnna antilope anomala</i> Wallace	-	+

<i>bolina jacintha</i> Drury	+	+
<i>misippus</i> L.	+	+
<i>Idea agamarschana cadelli</i> W-M & de Niceville	+	-
<i>Kallima albobasata</i> Moore	0	-
<i>Laringa horsfieldii andamanensis</i> de Niceville	0	-
<i>Lethe europa nudgara</i> Fruhs.	+	-
<i>tamuna</i> de Niceville	-	0
<i>Melanitis leda ismene</i> Cramer	+	+
<i>ziteinus andamanica</i> Evans	0	-
<i>Moduza procris anarta</i> Moore	+	-
<i>Mycalesis anaxias radza</i> Moore	0	-
<i>manii</i> Doherty	-	+
<i>mineus nicobarica</i> Moore	+	+
<i>visala andamana</i> Moore	+	-
<i>Neptis columella kankena</i> Evans	-	0
<i>ebusa ebusa</i> F.	-	0
<i>hylas andamana</i> Moore	+	-
<i>nicobarica</i> Moore	-	+
<i>sambilanga</i> Evans	-	+
<i>jumbah amorosca</i> Fruhs.	+	-
<i>binghami</i> Fruhs.	-	0
<i>nandina clinia</i> Moore	+	-
<i>sankara nar</i> de Niceville	0	-
<i>soma mananda</i> Moore	+	-
<i>Orsotrioena medus medus</i> Fabricius	+	-
<i>nicobarica</i> Evans	-	0
<i>ryneka</i> Moore	-	+
<i>Pantoporia hordonia cnacalis</i> Hewitson	+	-
<i>Parantica aglea agleoides</i> F.	0	0
<i>melanoleuca</i> Moore	+	+
<i>melaneus plateniston</i> Fruhs.	-	0
<i>nilgiriensis</i> Moore	-	+
<i>Parthenos sylvia roepstorffi</i> Moore	+	-
<i>nila</i> Evans	-	+
<i>Phalanta phalanta phalanta</i> Drury	-	0
<i>Polyura athamas andamanicus</i> Fruhs.	0	-
<i>schreiber tisamenus</i> Fruhs.	0	-
<i>Precis almana almana</i> L.	+	-
<i>nicobariensis</i> F.	-	+
<i>atlites</i> L.	+	+
<i>hierta magna</i> Evans	+	-
<i>orithya ocyale</i> Hubner	-	+
<i>Radena similis nicobarica</i> W-M & de Niceville	-	+
<i>Tirumala gautama gautamoides</i> Doherty	-	0
<i>limniace exoticus</i> Gmelin	+	+
<i>septentrionis septentrionis</i> Butler	+	+
<i>Vanessa cardui cardui</i> L.	+	-
<i>Vindula erota pallida</i> Staudinger	+	-
<i>Yoma sabina vasuki</i> Doherty	0	-

**Hesperiidae**

<i>Astictopterus jama permagnus</i> Fruhs.	o	—
<i>Badamia exclamationis</i> Fabricius	+	o
<i>Baoris cahira cahira</i> Moore	o	o
<i>oceia scopulifera</i> Moore	+	—
<i>Bibasis amara</i> Moore	o	—
<i>sena sena</i> Moore	o	—
<i>Borbo cinnara</i> Wallengren	+	o
<i>Calaenorrhinus andamanica</i> W-M & de Niceville	o	—
<i>leucocera leucocera</i> Kollar	o	—
<i>Cephrenes palmarum nicobarica</i> Evans	—	o
<i>Cupitha purreea</i> Moore	o	—
<i>Daimio bhagava andamanica</i> W-M & de Niceville	o	+
<i>Erionota thrax acroleuca</i> Moore	+	o
<i>Gangara thyraxis yasodara</i> Fruhs.	+	—
<i>Hasora badra badra</i> Moore	o	—
<i>chromus chromus</i> Fabricius (= <i>alexis</i> )	—	o
<i>leucospila parnia</i> Fruhs.	—	o
<i>salanga</i> Moore	—	o
<i>taminatus almea</i> Swinhoe	—	o
<i>malayana</i> F.	o	—
<i>vitta vitta</i> Butler	o	—
<i>Hyarotis adrastus praba</i> Moore	+	—
<i>Ismene harisa harisa</i> Moore	o	—
<i>jaina astigmanta</i> Evans	o	—
<i>Matapa aria aria</i> Moore	o	—
<i>druna</i> Moore	+	—
<i>shalgrama</i> Moore	o	—
<i>Notocrypta curvifascia</i> F.	+	—
<i>paralysos paralysos</i> W-M & de Niceville	o	—
<i>Oriens gola gola</i> Moore	+	—
<i>Paduka lebadea andamanica</i> W-M & de Niceville	o	—
<i>Pelopidas conjuncta javana</i> Mabille	o	o
<i>mathias mathias</i> Fabricius	+	—
sp. new to Andamans	+	—
<i>Potanthus maesoides ottalina</i> Evans	+	—
<i>serina serina</i> F.	o	—
<i>tropica nina</i> Evans	+	—
<i>Sarangesa dasahara dasahara</i> Moore	o	—
<i>Suastus rama aditus</i> Moore	o	—
<i>Tagiades atticus helferi</i> F.	—	+
<i>ravina</i> Fruhs.	+	o
<i>litigiosa andamanica</i> Evans	o	—
<i>obscurus alica</i> Moore	+	o
<i>Zographetus ogygia andamana</i> Evans	o	—

## Legend:

W-M Wood-Manson

+ Present in most recent survey

— Absent in most recent survey

o Present initially; not recorded after Evans (1932) and Ferrar (1951); currently believed extinct